PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

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NOTIFICATION OF TRANSMITTAL OF INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Rule 71.1)

Date of mailing *(day/month/year)*	20-09-2004
Applicant's or agent's file reference: 51017 wo	IMPORTANT NOTIFICATION

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IB2002/002160	12-06-2002	

Applicant
Nokia Corporation
et al

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in som Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the *PCT Applicant's Guide*.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, intentive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed invention is patentable or not" (see Also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the IPEA/ Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88 Telex 17978 PATOREG-S	Authorized officer STAFFAN RENNERMALM Telephone No. 08-782 25 00

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 51017 WO	**FOR FURTHER ACTION** See Form PCT/IPEA/416	
International application No. PCT/IB 2002/002160	International filing date *(day/month/year)* 12.06.2002	Priority date *(day/month/year)*
International Patent Classification (IPC) or national classification and IPC G06F 3/02, G06F 1/16, H04M 1/725		
Applicant Nokia Corporation et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *(sent to the applicant and to the International Bureau)* a total of 4 sheets, as follows:
      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s))
      _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:
   - ☒ Box No. I Basis of the report
   - ☐ Box No. II Priority
   - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - ☐ Box No. IV Lack of unity of invention
   - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - ☐ Box No. VI Certain documents cited
   - ☐ Box No. VII Certain defects in the international application
   - ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
05.01.2004	13.09.2004
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Kristoffer Ogebjer/EK Telephone No. +46 8 782 25 00

Form PCT/IPEA/409 (cover sheet) (January 2004)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/IB 2002/002160

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

☐ international search (under Rules 12.3 and 23.1(b))
☐ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

☐ the international application as originally filed/furnished

☒ the description:

pages 1-14 as originally filed/furnished
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____

☒ the claims:

pages _____ as originally filed/furnished
pages* _____ as amended (together with any statement) under Article 19
pages* 1-4 received by this Authority on 23.06.2004
pages* _____ received by this Authority on _____

☒ the drawings:

pages 1-2 as originally filed/furnished
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/figs _____
☐ the sequence listing *(specify)*: _____
☐ any table(s) related to the sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/figs _____
☐ the sequence listing *(specify)*: _____
☐ any table(s) related to the sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

national application No.
PCT/IB 2002/002160

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-18	YES
	Claims		NO
Inventive step (IS)	Claims	1-18	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-18	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

D1: EP, A2, 0933908
D2: WO, A1, 0131897
D3: US, A1, 2002006815
D4: US, A1, 2002044136

The object of the invention is to provide a keyboard with improved usability of double function assigned keys.

D1, which is considered to be the closest state of the art, discloses a set of keys acting as keys of a telephone keypad and keys of an alphanumeric keypad, depending on the typing mode set by the user. A subset of keys having double assigned functions. A key is pressed in order to change mode.

D2 discloses a keyboard (126) where a control key on the keyboard 126 may be used to place the keyboard 126 in a first operational mode. In the first operational mode, a 3.times.4 matrix of keys on the keyboard 126 are activated and function in a manner identical to the 3.times.4 matrix of keys on a conventional wireless communication device.
In a second mode of operation, the keyboard 126 functions as a conventional keyboard to allow the entry alphanumeric text, which is stored in the text data storage area 132 (see FIG. 1) as described above. The system 100 may be toggled back and forth between the first and second modes of operation through the activation of selected keys on the keyboard 126. The keys of the keyboard 126 may be conveniently labelled to indicate dual-functionality in the two different modes of operation.

D3 relates to a mobile device with a divided keyboard.

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: Box V

D4 disclose the general feature of using a NUM lock key 32C for selecting numbers associated with letter keys.

The cited documents represent the general state of the art.
The invention defined in claims 1-18 is not disclosed by any of these documents.
The cited prior art does not give any indication that would lead a person skilled in the art to the claimed method and device of the mixing mode and the mode being application dependent. Therefore, the claimed invention is not obvious to a person skilled in the art.
Accordingly, the invention defined in claims 1-18 is novel and is considered to involve an inventive step. The invention is industrially applicable.

PCT-Application PCT/IB 02/02160
Applicant: Nokia Corporation
Our Ref.: 51017 WO (KG/TP)

New Claims

1. A mobile communication device, comprising:
   - a set of keys organized as a keyboard, said set of keys each having a first assigned function for entering alphanumeric text;
   - wherein at least a subset of keys included in said set of keys is arranged in a pre-determined configuration, said subset of keys each having a second assigned function for entering alphanumeric text; and
   - a plurality of applications executable on said mobile communication device;

   characterized in that
   - a portion of said keys comprises a first selection of keys of said subset of keys and a second selection of keys of said set of keys,

     wherein said first selection of keys is provided for entering numbers and telephone number related symbols in accordance with said second assigned function,

     wherein said second selection of keys is provided for entering control letters in accordance with said first assigned function, said control letters having a control function in relationship with the entering of telephone numbers;
   - at least one of said plurality of applications is adapted to switch a keyboard operation mode into a first mode and into a second mode;
   - said set of keys and said at least one subset of keys included in said set of keys are operable with said keyboard operation mode being in said first mode; and
   - said portion of keys is operable with said keyboard operation mode being in said second mode.

2. A mobile communication device according to claim 1, comprising:
   - a mode selecting key for switching an input mode into a first mode and into a second mode, said mode selecting key being operable to change modes in at least one of said plurality of applications; and

   characterized in that in case said keyboard operation mode is in said first mode:
   - said set of keys each having a first assigned function is operable with said input mode being in said first mode; and
   - said subset of keys each having a second assigned function is operable with said input mode being in said second mode.

3. A mobile communication device according to claim 2, characterized by:
   - a keyboard controller adapted to receive signals from said keyboard and signals from said mode selecting key, and adapted to generate commands in accordance with said received signals and able to transmit said commands to at least one of said plurality of applications;
   - a first set of commands is provided operable with said input mode being in said first mode and said keyboard operation mode being in said first mode, said first set of commands representing said first assigned function of said set of keys; and
   - a second set of commands is provided operable with said input mode being in said second mode and said keyboard operation mode being in said first mode, said second set of commands representing said first assigned function of said set of keys.

4. A mobile communication device according to claim 3, characterized in that in case said keyboard operation mode is in said second mode:
   - a third set of commands is provided, said third set of commands representing said second assigned functions of said first selection of keys and representing said first assigned functions of said second selection of keys.

5. Mobile communication device according to anyone of the preceding claims, wherein said second assigned function of said subset of keys comprises at least numbers 0 to 9 and symbols "+", "#" and "*" for entering alphanumeric characters.

6. Mobile communication device according to anyone of the preceding claims, characterized in that said second assigned function of said first selection of keys comprises at least numbers 0 to 9 and symbols "+", "#" and "*" for entering a telephone number for entering telephone numbers.

7. Mobile communication device according to anyone of the preceding claims, characterized in that said control letters comprise a letter "P" for entering a pause control function and a letter "W" for entering a wait control function, wherein said control functions are entered in combination with telephone numbers.

8. Mobile communication device according to anyone of the preceding claims, wherein said keyboard is substantially arranged as a QWERTY keyboard.

9. Mobile communication device according to anyone of the preceding claims, wherein said keyboard comprising said plurality of keys is arranged in stacked rows.

10. Mobile communication device according to according to anyone of the preceding claims, wherein said keyboard comprises a row including at least two space keys and two shift keys arranged symmetrically.

11. Mobile communication device according to according to anyone of the preceding claims, wherein said keyboard comprises a row including two mode selecting keys arranged symmetrically.

12. Mobile communication device according to according to anyone of the preceding claims, characterized in that said at least a variety of keys of said portion of keys are shaped different from remaining keys of said keyboard.

13. Mobile communication device according to according to anyone of the preceding claims, characterized in that at least a variety of keys of said portion of keys are colored different from remaining keys of said keyboard.

14. Mobile communication device according to anyone of the preceding claims, characterized by:
- a keyboard detector;
- wherein said keyboard is detachably connected to said mobile communication device and has a keyboard identification component; and
- said keyboard identification component is adapted to at least said first and second assigned functions of said keys of said keyboard.

15. Mobile communication device according to claim 14, characterized in that said detachably connected keyboard is included in a cover being at least a part of a housing of said mobile communication device, wherein said cover is detachably connected to said mobile communication device.

16. Mobile communication device according to claim 14 or claim 15, characterized in that said keyboard identification component is a resistant having a certain pre-determined characteristic.

17. Mobile communication device according to anyone of the claims 14 to 16, characterized in that said detachably connected keyboard is adapted to right handed use or left handed use.

18. Method for controlling an operation of a keyboard of a mobile communication device, characterized by:

- receiving a keyboard operation mode signal from at least one of a plurality of applications executable on the mobile communication device;
- switching a keyboard operation mode into a first mode and into a second mode in accordance with said received keyboard operation mode signal;

in case said keyboard operation mode is in said first mode:

- receiving an input mode signal;
- switching an input mode into a first mode and into a second mode in accordance with said received input mode signal;
- receiving an input signal;
- generating a command from said received input signal in combination with said input mode, said command being one of a plurality of commands including a first set of commands generated in said input mode being in said first mode and a second set of commands generated in said input mode being in said second mode, said first set of commands represents said first assigned functions of said set of keys, said second set of commands represents said second assigned functions of said subset of keys; and
- transmitting said generated command to at least one of said plurality of applications

in case said keyboard operation mode is in said second mode:

- receiving an input signal;
- generating a command from said received input signal, said command being one out of third set of commands; said third set of commands represents said second assigned functions of said first selection of keys and said first assigned functions of said second selection of keys; and
- transmitting said generated command to at least one of said plurality of applications.